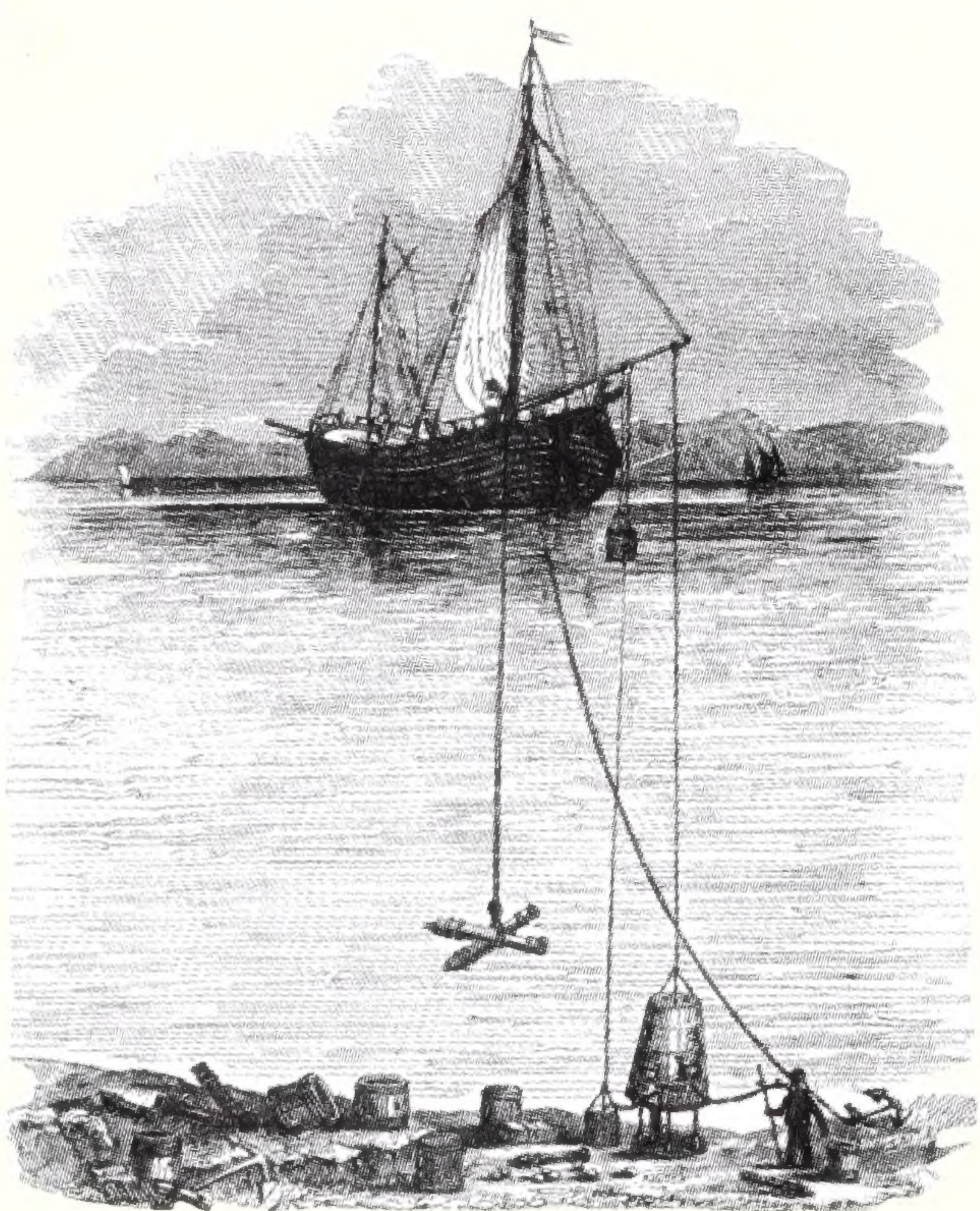


THE DIVING BARREL

An early and crude mechanically assisted piece of diving apparatus was Jacob Rowe's diving barrel, invented in 1753. The diver was encased in a hollow copper vessel with two holes for the occupant's arms to protrude and a glass window at one end. This enabled the diver to stay under the water for up to 30 minutes until all the air inside had been used up.

and cargoes they carried. This evidence enables researchers to build a vivid picture of the society of the time. Today, sophisticated technology enables us to investigate deeper under the waves so that vessels such as the *Titanic* are beginning to yield their secrets.

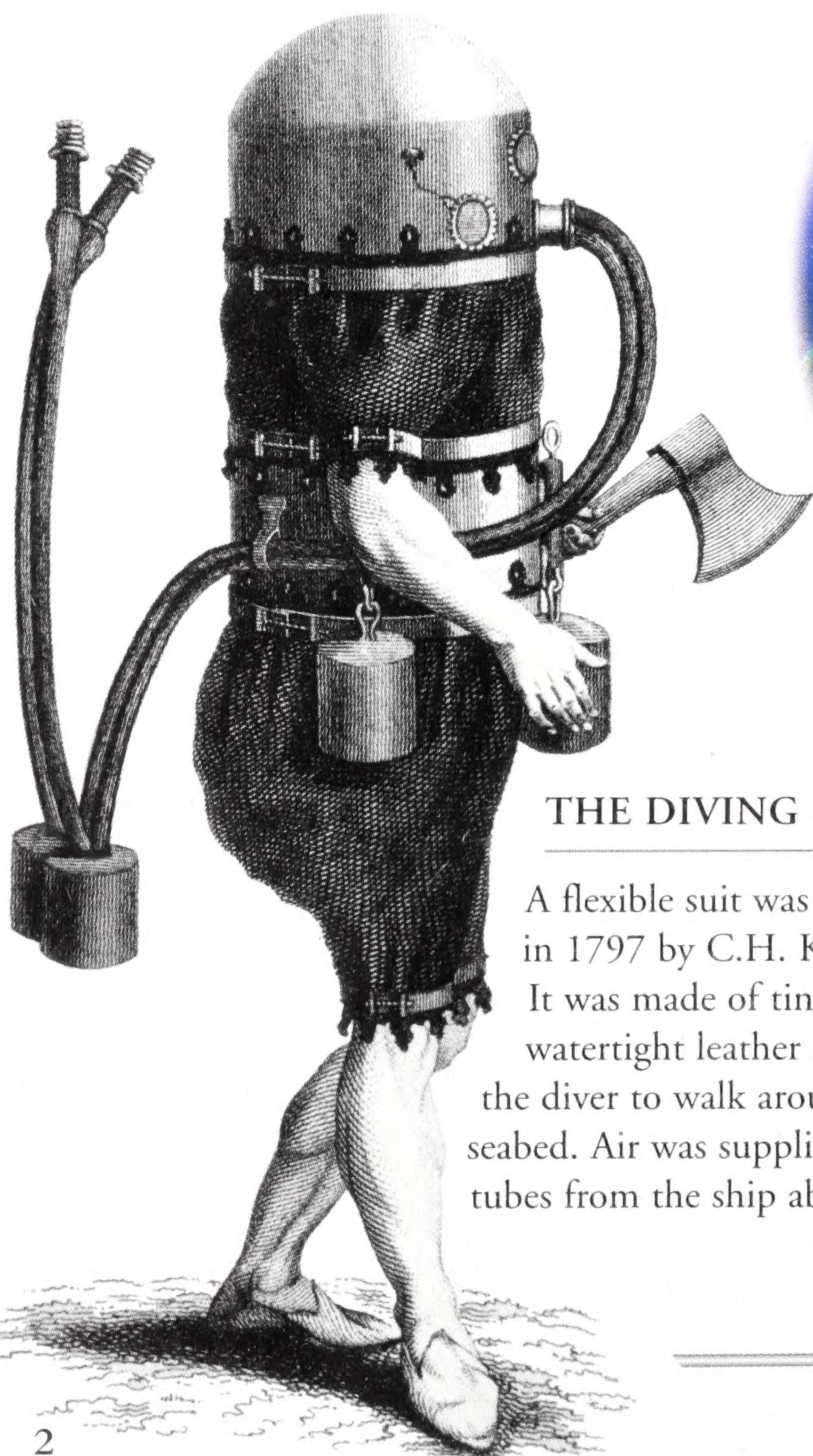


THE DIVING BELL

The principle of the diving bell, which allowed a person to be submerged while breathing air through a tube from the surface, has been known about and tried since at least the time of Aristotle (c. 350 B.C.). In the early 18th century Halley produced a crude diving bell made of wood and coated in lead to make it heavy enough to sink. This was bell-shaped with a top of clear glass to provide light and a device to let out air expended by its user. The bell was reported to have been used at a depth of 60 feet (18 meters).

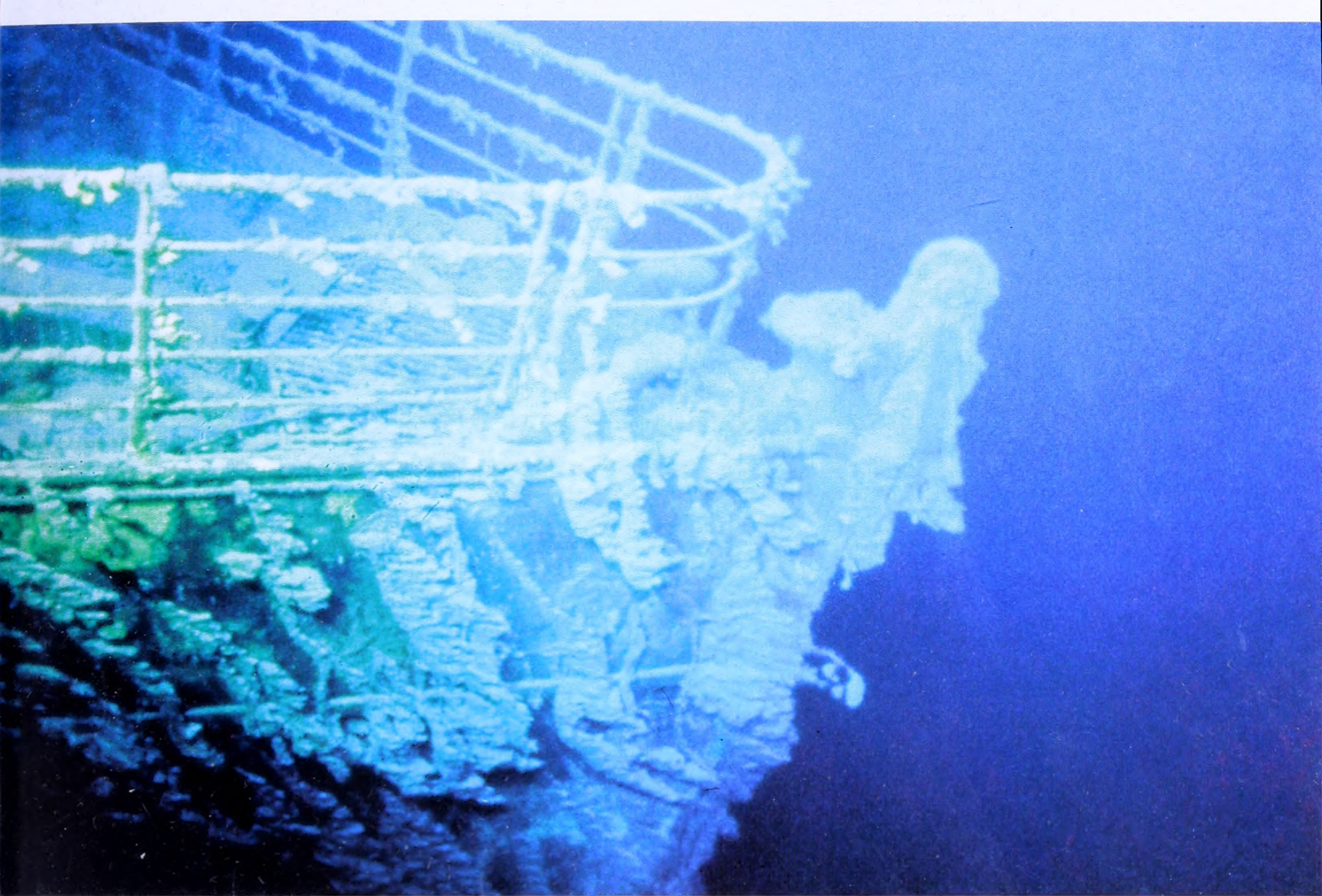
Exploring the Deep

Ships have been wrecked for as long as man has gone to sea. Some of the earliest evidence we have of ancient civilizations has come from wrecked ships. These are often time capsules carrying valuable information about the way the ships were built, the crews that sailed them, and the passengers and cargoes they carried. This evidence enables researchers to build a vivid picture of the society of the time. Today, sophisticated technology enables us to investigate deeper under the waves so that vessels such as the *Titanic* are beginning to yield their secrets.



THE DIVING SUIT

A flexible suit was invented in 1797 by C.H. Klingert. It was made of tinplate and watertight leather and allowed the diver to walk around on the seabed. Air was supplied through tubes from the ship above.



THE UNDERWATER LUNG

It wasn't until 1943, with the invention of the aqualung by, among others, Jacques Yves Cousteau, that modern-day exploration greatly progressed. An air-regulating device, used in wartime gas-driven car engines, was adapted for use with the Le Prieur diving apparatus. The aqualung automatically provided air to the diver from bottles strapped to the back. Divers were now free from all the heavy diving gear they had previously had to put up with.

THE ARMORED SUIT

The most modern diving suits, called hardsuits, are armored and capable of withstanding the incredible water pressure from outside, which builds up the deeper the diver goes. Literally tons of water above the diver's head generate enormous water pressure, so the suit needs to maintain tolerable air pressure inside at depths of up to 1,180 feet (360 meters). The designs are based on early suits of armor, which found ways of jointing arms and legs, permitting the wearer freedom of movement.

SEARCHING THE WRECKS

Diving on wrecks is a popular pastime as well as a serious venture. With the aid of the wetsuit and aqualung, many enthusiasts around the world search out the treasures of the deep.





ICEBERGS

Icebergs are floating masses of frozen freshwater that have broken free from an ice sheet. They are most common in spring months when the warmer weather melts the Greenland and Antarctic ice shelves. Icebergs can be small lumps of ice or huge blocks the size of a ten-story building. Only one-seventh is visible above the waterline.

Small icebergs, known as growlers, are difficult to detect on a ship's sonar.

Ships face many dangers on the open seas. Storms, fog, and underwater reefs are as dangerous today as they ever were, but technology today gives the vigilant crew more advanced warning than their predecessors ever had. Accurate weather forecasting and ship-to-shore communication mean that vessels are able to take precautions when storms approach, either sheltering in harbor or taking alternate routes. All seagoing ships now carry global positioning systems (GPS) that use satellite technology to fix their position with pinpoint accuracy, and similarly advanced equipment determines how much clearance there is between the ship's hull and the seabed at all times. Most of the world's coastline is mapped, and detailed charts, together with local pilots, help the ship's crew to navigate successfully without incident. But the age-old hazards of the sea still remain.

CORAL REEFS

Reefs are ridges of rock, sand, or coral that lie close to the surface of the sea. Ships risk running aground on these ridges, which can cause fatal damage to the hull or just hold the ship fast. Hard coral reefs grow extremely slowly, so reefs damaged by ships may take hundreds of years to recover.

